



SeamossPlus: A Locally Developed Therapeutic Food and Multiple Micronutrient Supplement

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A: Executive Summary:

SeamossPlus is a locally developed nutrient-dense functional food formulated from **76% sea moss (760 g)** and **24% lemongrass (240 g)**. It has been developed to address multiple micronutrient deficiencies, improve digestive quality, and support the prevention and management of malnutrition-related health conditions. Rich in vitamins, minerals, amino acids, anti-inflammatory, antioxidants, essential fatty acids, and bioactive compounds, SeamossPlus has the potential to serve as both a **Therapeutic Food (TF)** and a **Multiple Micronutrient Supplement (MMNS)**. Beyond its health benefits, its local production presents significant opportunities for improving livelihoods, creating employment, reducing import dependence, and strengthening Tanzania's blue economy.

B: Product Description:

SeamossPlus is manufactured from carefully processed sea moss and lemongrass through standardized washing, drying, grinding, and packaging procedures. It is available as powder (100 g, 125 g, and 250 g) and capsules.

Sea moss provides a rich source of essential nutrients, including sulphated polysaccharides, minerals such as iodine, calcium, magnesium, Sulphur, potassium, iron, zinc, selenium, vitamins A, B-complex, C, D, E and K, together with phytochemicals such as fucoidan, polyphenols, flavonoids.

Lemongrass-citral aroma enhances palatability while contributing additional health-promoting compounds including citral, limonene, geraniol and myrcene with antioxidant, anti-inflammatory and antimicrobial properties.

C: Safety and Quality Assurance

SeamossPlus is produced under stringent quality assurance procedures.

Key safety features include:

- Government Chemist Laboratory Authority certification confirming **no detectable mercury, lead, arsenic, cadmium or chromium**
- Raw materials harvested from uncontaminated coastal environments
- Hygienic harvesting and processing
- Standardized drying, packaging and storage procedures as approved by TBS
- Production guided by:
 - FAO seaweed handling guidelines
 - Tanzania Bureau of Standards (TSS 2750:2022) and TSS3950

These measures ensure product safety, consistency and consumer confidence.

D: Why SeamossPlus Qualifies as a Therapeutic Food

The diverse nutrient profile and bioactive compounds make SeamossPlus a promising therapeutic food capable of supporting nutrition and health through multiple biological pathways.

Potential health benefits include:

- cardiovascular health support
- blood pressure regulation
- improved kidney health
- antioxidant protection against oxidative stress

- Prevent chronic inflammation; a key driver to chronic diseases
- Weight management for overweight and obese
- reproductive health support (Male and female sexual health)
- immune function enhancement

Its therapeutic effects are largely attributed to bioactive compounds including **fucoidan, polyphenols, omega-3 fatty acids, antioxidants and essential minerals**, which influence inflammatory pathways, oxidative stress, vascular function and metabolic regulation.

D: Preliminary Field Experience

Preliminary observations suggest encouraging health outcomes following regular SeamossPlus consumption.

Nephrotic Syndrome

A 31-year-old woman with longstanding nephrotic syndrome experienced:

- approximately **94% reduction in urine protein**
- improved physical wellbeing
- subsequent successful pregnancy following secondary infertility – now breast feeding

Type 2 Diabetes Mellitus

A 35-year-old male demonstrated:

- Random Blood Glucose reduction from **24.7 mmol/L to 5.9 mmol/L**
- HbA1c improvement from **9.0% to 4.3%**

After approximately six months of daily supplementation.

Hypertension

A six-month follow-up of four hypertensive individuals showed consistent reductions in systolic blood pressure, with average reductions ranging from approximately **14–46 mmHg**.

Important Note: These observations represent preliminary field experience and should not be interpreted as proof of efficacy. Well-designed randomized controlled clinical trials are required to establish safety and effectiveness for therapeutic indications.

SeamossPlus as a Multiple Micronutrient Supplement (MMNS)

SeamossPlus provides a broad spectrum of nutrients required for normal physiological function.

Major nutrient groups include:

- Essential vitamins (A, B-complex, C, D, E and K)
- Essential minerals including iodine, calcium, iron, magnesium, potassium, phosphorus, zinc and selenium
- Essential amino acids
- Sulphated polysaccharides and Polyunsaturated fatty acids
- Polyphenols and flavonoids
- Fucoidan and other marine bioactive compounds

This nutrient diversity makes SeamossPlus a promising food-based MMNS for supporting immunity, growth, metabolism and overall nutritional status.

E: Economic and Development Benefits

Scaling production of SeamossPlus could generate substantial national benefits by:

- Creating value addition within Tanzania's seaweed industry
- Increasing incomes for coastal farming communities, particularly women
- Generating employment in processing, packaging and distribution
- Strengthening youth and women entrepreneurship
- Reducing dependence on imported nutritional supplements
- conserving foreign exchange
- Promoting local manufacturing and industrialization
- Supporting Tanzania's Blue Economy strategy

F: Policy Recommendations

The Government should consider:

- 1.Supporting rigorous laboratory, toxicological and clinical evaluation of SeamossPlus.
- 2.Establishing a science-based regulatory pathway for approval of locally developed therapeutic foods and MMNS.
- 3.Supporting local manufacturing and commercialization through public-private partnerships.
- 4.Promoting research and innovation in marine-based nutrition products.
- 5.Integrating approved locally produced nutrition products into national nutrition programmes where evidence supports their effectiveness.
- 6.Strengthening quality assurance systems to ensure internationally acceptable production standards.

G: Conclusion

SeamossPlus represents an innovative Tanzanian solution that combines marine resources with food science to address nutrition challenges. Its rich nutrient composition, encouraging preliminary field observations, established safety testing and significant socioeconomic potential position it as a promising candidate for further scientific evaluation as both a **locally developed Therapeutic Food** and a **Multiple Micronutrient Supplement**. With rigorous clinical research and an enabling regulatory environment, SeamossPlus has the potential to contribute to improved nutrition, public health, local industrial development and sustainable economic growth in Tanzania.